

**Issue 9
January-February 2016**

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Office of Academic Support Happenings:

Advanced Placement One-Day Training

By: Anjanette Parisien, Assistant Director, NDDPI Office of Academic Support

North Dakota teachers in English, calculus, and biology engaged in a day-long Advanced Placement training on January 22, 2016. This first of a series of "one-day trainings" in Advanced Placement course offerings was filled with deep discussions of best practices and course enhancements to encourage North Dakota students to put their best effort forward within Advanced Placement coursework.



Please visit the North Dakota Department of Public Instruction's (NDDPI) Events calendar for future trainings in the fall of 2016 at www.nd.gov/dpi/events/.

Math Leadership Team

By: Russ Ziegler, Assistant Director, NDDPI Office of Academic Support

The Math Leadership Team started as a cross-state project initiated by the Council of Chief State School Officers (CCSSO). This project brought teacher leaders from Montana, North Dakota, South Dakota, and Iowa together to network, collaborate, and create resources for each state. This collaborative group, along with CCSSO, identified some areas that could help the states in the implementation of their standards.

The group began working on mathematics modules that will be presented and distributed throughout the state when completed. These modules consist of: Collaborative Grouping, Discourse, Effective Questioning, Mindset, Strategies for Modifying Tasks, Using Assessment, and Using Real-World Context. The work that the collaborative team has done is based in part on the book: *Principles to Actions: Ensuring Mathematical Success for All* from National Council of Teachers of Mathematics (NCTM).

The North Dakota team consists of: William Martin, Cathy Williams, Nathan Welstad, Michele Iiams, LaCosta Potter, Tammy Meyer, Lynn Mitzel, Rhonda Grindy, and Kristen Monson. These individuals represent higher education, secondary schools, and REAs across the state. As of today, we have three completed modules: Collaborative Grouping, Mindset, and Using Real World Context. The rest of the modules will be completed by the team members shortly. Some of the modules and an overview of the project will be presented at the North Dakota Collaborative Spring Conference on April 22-23, 2016, in Grand Forks, ND.

If you would like more information, please email [Russ Ziegler](mailto:Russ.Ziegler@nd.gov) or call (701) 328-2629.

Laying the Foundation Registration Is Open!

The NDDPI is excited to announce that registration is open for the July 12-15, 2016 Laying the Foundation (LTF) professional development training. The LTF training will be held at Minot High School, 1100 11th Ave. SW, Minot, ND.

The LTF is a program of the National Mathematics + Science Initiative (NMSI). Laying the Foundation provides [math](#), [science](#), and [English](#) teachers with the best content-based, pedagogy-driven, teacher-to-teacher training. The training is held in the proper environment for the subject. The training will help educators with teaching strategies and content knowledge that increase rigor in the classroom and are aligned with state standards. This training is more than just another professional development session; it's an event that offers educators a variety of opportunities to strengthen their knowledge and practice. Teachers who attend our training events receive:

- ◆ Specialized, hands-on and engaging teacher training designed by expert educators for teachers of any level
- ◆ Rigorous, online classroom-ready lessons
- ◆ Vertical alignment across grade levels
- ◆ Ongoing support from expert teachers

Registration:

To register, go to <http://training.nms.org/Portal/Registration/RegistrationMap.aspx>. Payment options are outlined on the final screen of the registration system. For North Dakota educators employed in North Dakota school districts, the \$725 registration fee will be covered through a grant provided to NMSI. The PROMO CODE for these events is NDLTF2016. By entering the promo code, the \$725 fee will be waived for the registrant.

Once registration is complete, participants will receive confirmation directly from NMSI regarding the selected training. Cancellation information is also provided. Please review this information in the event you need to cancel. It is extremely important to cancel if you are unable to attend as the grant provided to NMSI will be charged for each registration. If an individual registers for the training, but fails to attend and does not make alternate arrangements, the district's participation in future NMSI initiatives may be compromised.

Credit:

If participants are interested in pursuing credit for professional development, the NDDPI has secured two credits available through the University of Mary. To register for credit online go to www.hobsonsradius.com/ssc/aform/x7TS5kN6870kx6700kCM.ssc.

Hotel:

A block of sleeping rooms has been set aside at the Grand Hotel in Minot under "NMSI Laying the Foundation". Contact the Grand Hotel to make your reservation. Please note the rooms will be released June 27, 2016.

Questions:

Should you have questions regarding LTF, please feel free to email [Beth Larson-Steckler](mailto:Beth.Larson-Steckler@nddpi.org) or call (701) 328-3544 or email [Ann Ellefson](mailto:Ann.Ellefson@nddpi.org) or call (701) 328-2488.



Picturing Writing: Fostering Literacy through Art ND Heritage Center, June 13-17, 2016

The North Dakota Department of Public Instruction (NDDPI), North Dakota Council on the Arts (NDCA), and North Dakota Council of Humanities (NDCH) are collaboratively hosting the Picturing Writing: Fostering Literacy through Art training. Beth Olshansky, Director of the Center for the Advancement of Art-Based Literacy at the University of New Hampshire in Durham and author of *The Power of Pictures: Creating Pathways to Literacy Through Art* will facilitate the training.

During this training, participants will learn to combine creativity, rigor, and deep thinking through a progression of art-and-literature-based mini-lessons designed to provide students with an experiential understanding of the key elements of writing including: sense of setting, character and plot development (problem and solution), creating an ending, and use of descriptive words.

The NDDPI along with its partners NDCA and NDCH will offer an enriched learning opportunity for educators to participate in a five-day training and will cover the cost for registration, lunch, and materials to eligible participants that meet any of the following criteria:

1. Educators working in the Bureau of Indian Education schools and/or in schools with a high percentage of Native American students. Native language and culture teachers are highly encouraged to attend.
2. Educators working in a school with a student population consisting of 40% or more poverty rate.
3. Educators working in Title I schoolwide programs.

Daily Schedule

Registration will begin at 8:00 am each day, and the training runs from 8:30 am to 3:30 pm.

Housing

Reserved housing is available through Bismarck State College (BSC) at a rate of \$30 for a single room per night and \$25 for a double room per night. If you intend to take advantage of the housing at BSC, you will be required to indicate this on the registration form, otherwise you are free to arrange your own housing/hotel accommodations.

Graduate Credit

Two graduate credits are available for \$100 through University of North Dakota, North Dakota State University, and Minot State University.

Registration

Registration for this training is available at www.surveymonkey.com/r/Q9G2FCF. The deadline to register is March 21, 2016, as commitments for materials and meals must be secured. The following information includes a summary, expected outcomes, and training materials participants will receive.

Additional information on the training can be found at www.nd.gov/dpi/events/PicturingWriting/ on the NDDPI website. If you have registration questions, please email [Jill Frohlich](mailto:Jill.Frohlich@nddpi.org) from the NDDPI or call (701) 328-2254. If you have questions regarding the training, please email [Rebecca Engleman](mailto:Rebecca.Engleman@ndca.org) from the NDCA or call (701) 328-7593.

How I Used Picturing Writing with My ELA Curriculum

By: Jill Senftner, Teacher at Simle Middle School

The Picturing Writing class provided the skills and support I needed to fully implement artistic techniques into my English Language Arts curriculum. I began with a Project Based Learning method in mind where I could include the social studies and digital literacy teachers at my school. I combined their standards with mine, and we researched places to visit in Egypt that originated thousands of years ago, in the ancient world, and still exist today. We created travel brochures and used our crafty writing abilities to entice tourists/travelers to visit these amazing places. Through the research process, students were able to find pictures from the Internet (labeled for reuse under usage rights), and we used several books and Internet sites to gather facts about these places. The pictures served as an inspiration point for the crayon resist watercolor painting. Students were taught several painting techniques, which I learned from the Picturing Writing class, and used these methods to enhance their art work. The work was a rewarding experience and it was great to see how much joy and relaxation this brought into their world. The students and I found the experience to be fulfilling and look forward to our next Picturing Writing project.



Come To Egypt

Temple Of Ramses

This ancient site is a must see for all tourists! This feat of ancient engineering was a symbol of Pharaoh Ramses II victory over the Hittites in the battle of Kadesh. In the front of the temple complex it displays four massive statues of Ramses II carved into a cliff, symbolizing his great power.



The Great Pyramids Of Giza

These behemoth structures have left archaeologists baffled wondering, "How the heck did ancient Egyptians build these massive structures?" Witness the sheer awe of being in the presence of 2,300,000 blocks arranged to create a towering monument of Pharaoh Khufu's power.



King Tut's Tomb

Discovering King Tut's tomb was the largest turning point in what we know about ancient Egypt. This grand tomb for a young king was garnished with 3,500 relics of the ancient world, topped off with a golden mask for the king that weighed in at ten kilograms!



EXPLORE EGYPT!



NILE RIVER

COOL OFF BY TAKING A DIP IN THE REFRESHING NILE RIVER; THE LARGEST RIVER IN THE WORLD!

THIS ANCIENT RIVER UNIQUELY FLOWS NORTH INTO THE MEDITERRANEAN SEA.

ABU SIMBEL



STOP BY THE GREAT MONUMENT OF ABU SIMBEL!

BUILT FOR RAMSES THE SECOND, THIS AMAZING STRUCTURE CONSISTS OF WALLS, CORRIDORS, AND PILLARS--ALL HAND CARVED. BELIEVE IT OR NOT, BUT ABU SIMBEL WAS ALSO CUT INTO BLOCKS AND MOVED!

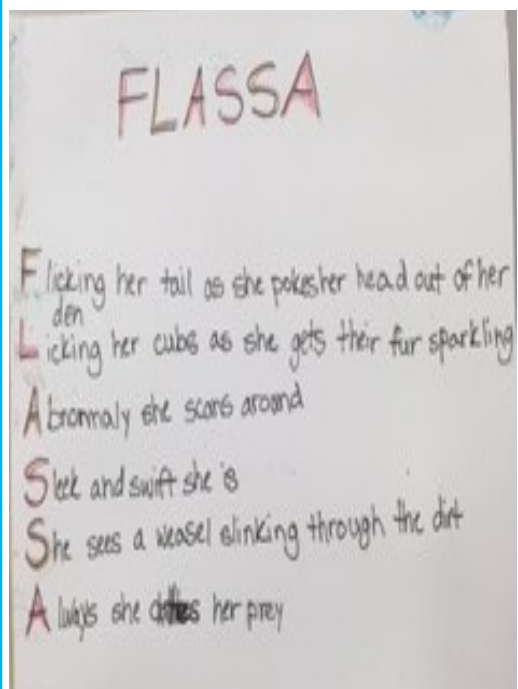


Picture Writing in Action

By: Kay Powers, Teacher at Cathedral Elementary School, Bismarck ND

When students in my classroom come upon an unfamiliar word or phrase, I often encourage them to pause and study each word and then explore how the words are connected to other words in the phrase or paragraph. This careful attention to detail and context usually leads students to discovering the meaning of previously unknown words and the author's intent. True to this process, the "Picturing Writing" workshop, which I attended last summer, demonstrated how this same process, when combined with pictures and art making, leads students to improved literacy.

As a teacher who understands the importance of literacy, I had spent years searching for ways to engage students in the reading and writing process. For years I provided topics that were what I thought fun and engaging. We did rewrites to add more detail, adjectives to provide more color, and real life examples to make it more personal, and on and on and on. Knowing that students loved to draw and make art, I would often try to entice my reluctant writers by allowing them to illustrate their story once the writing process was complete. Regardless of the "tricks" I pulled from my bag, the percentage of students who soared, the ones who wrote halfheartedly, and the ones who labored and could not come up with anything to write about...remained the same.



Picturing Writing provided one of the most significant "ah ha" moments in my teaching career. In Beth's class, I learned the value of what I call such a 'simple' yet 'revolutionary' concept. **Draw and paint your picture first – then write.** By flipping the process the student creates, studies, and explores all of the beautiful details of his/her own picture to discover wonderful and personal things to write about! Now they can see, or picture, what to write! REALLY?? It's that simple?? Yes it is!!

Inspired and excited by this revelation, I systematically began to implement this revolutionary process in my classroom. I started by sharing and discussing simple works of literature that exemplified the elements I planned to teach. We observed illustrations artists used in their books and discussed the techniques used to create their images. Using Beth's step-by-step process, I modeled simple water color/crayon resist techniques to paint elements such as skies at different times of the day, sunsets, sunrise, clouds, etc. This demonstration was followed by an art work session where students practiced what they had just observed.

Next, the class participated in a group share. Selecting a handful of students, I placed their pictures into a frame on the board. Students were encouraged to closely observe the picture and make specific comments about the techniques that were used. Students were then encouraged to delve deeper, to brainstorm descriptive language that described what they were seeing. "Silver dollar" or higher level vocabulary words were encouraged. These words and phrases were listed on a wall chart for everyone to use in their stories and in future writing.



Picture Writing in Action—continued

Finally, students placed their pictures in small easels and looked closely at the images to create their own personal word list. From these word lists, students developed beautifully descriptive phrases, poems, and short stories. I was amazed to see the areas of the ELA curriculum that were covered, including personification, simile, metaphor, setting, mood, and more!

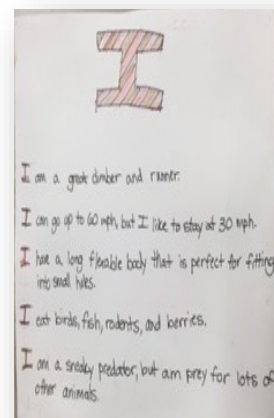
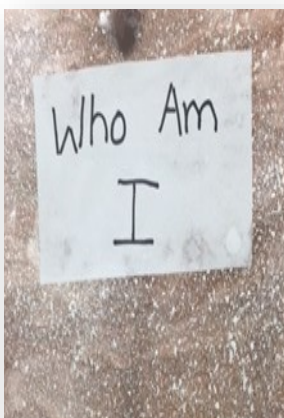
I also discovered that the Picturing Writing process could be easily integrated in other areas of the curriculum. One example is an animal study for science. This project began with students skimming through several animal picture books to select an animal for research and who would become the subject of their “Who Am I” books. Once the student had selected their animal they placed a picture of the animal on an easel in front of them. Students closely observed and then painted their first clue—a close up of the animal’s eye. Next, on a new sheet of card stock, the students painted a close-up of the animal’s skin. Finally, on a third sheet of paper, the students drew and painted the animal in its environment.

The next step for our “Who Am I” books began with researching and recording facts and information about the animal. After the “Fact Sheets” were complete, students placed their pictures in their easel, one at a time, to closely observe and brainstorm. Each picture provided the visual information students needed to create inviting and descriptive clues as to their animal’s identity. Students used brainstorming sheets and wall charts of words to create a web of information. From this web, students typed out five to eight facts as clues adding literary elements such as poems, similes, personification, and metaphors.

To create the actual book, the completed pictures and pages were glued into a tri-fold with the animal’s eye as the cover page. Upon opening the book, the reader was led through a series of descriptive visual images and written clues as the animal’s true identity. On the final page, the animal was finally revealed in its environment. The back page of the book included information on the proud author. Through this process, students learned not only how to paint but to also research and write convincingly.

As with all new processes, practice breeds confidence, skill, and independence. Since integrating Picturing Writing fully into my teaching practice, students have become so comfortable and familiar with the process that they now work independently in the art corner to complete their paintings from start, to finish, to clean up. Best of all, the moans and groans concerning writing assignments are a thing of the past. Through Picturing Writing my students and I have discovered the joyful process of painting with both pictures and words!

For more information, contact Kay Powers, 5th Grade Teacher at Cathedral Elementary, Light of Christ Catholic Schools in Bismarck, (701) 223-5484.



STEM Days: How an In-School Program Inspired Students and Teachers

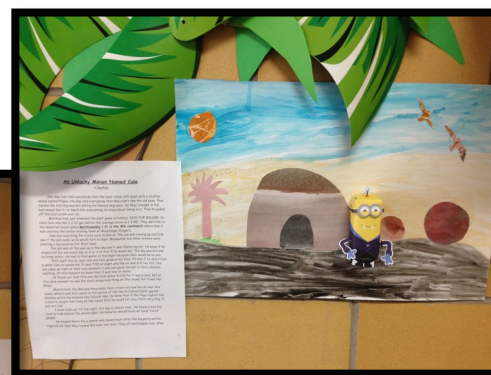
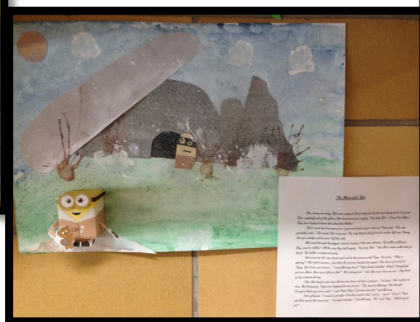
By: Kelsy Power, Math Teacher

STEM is a buzzword we've been hearing about a lot lately in the education world. What is it? Actually, it's a series of words: science, technology, engineering, and math. These fields are so interconnected that it makes sense to combine them into one of many educational acronyms. As teachers, we are continuously trying to integrate the different subject matters to make it more meaningful to the students. The beauty about STEM is that the integration happens naturally. In fact, students and teachers alike quickly learn that you also can't have STEM without the arts, which is why STEAM was introduced. The importance of all these subject areas was felt by students and teachers in an interactive, hands-on STEM project at Cathedral School.

Over the course of two weeks, the fifth grade science teacher Kay Power (who just so happens to be my mom!) and I partook in a project called STEM days. This project was offered to us through Sylvan Learning Center. At our school, we run our fifth and sixth grade like a middle school. I teach all the math and Kay teaches all the science. When Kay approached me about Sylvan's program, we knew it was too good to pass up. In lieu of our regular math and science periods, we structured each day into a morning 90-minute block for the fifth grade and an afternoon 90-minute block for the sixth grade. In total, we had 68 students participate in the STEM days.

Each day, the students participated in a different activity. They learned about engineering and math through building beam and truss bridges. They learned about technology and science through programming LEGO® windmills and Ferris wheels. They incorporated art by designing and building their structures. They built LEGO® cars and learned about force and friction, and used math to measure the width of their axels and the distance that their car went. They used scales to figure out how many pounds their bridges could hold before folding. The students learned to think like real engineers in order to have cost effective materials and sturdy products.

It amazed us as we watched our students work. The amount of information they learned and retained was remarkable. And above all of the invaluable knowledge they gained, the students grew substantially in their life skills. They saw the importance of perseverance when their first, second, and sometimes third attempt failed. They learned how teamwork and good communication skills were essential to the success of the group. They understood how critical it was to follow directions. When the students spent a day coding on computers, it was interesting to see their frustration at certain points. How often as teachers do we hear, "Mine isn't working." We didn't fix it for the students. We wanted to see how they could problem solve. While this was quite frustrating to them at first, it was worth it when they felt the satisfaction of fixing the problem. It also taught them that they have to read carefully and follow directions exactly.



STEM Days—continued

By: Kelsy Power

I have always held the belief that teaching is more than helping students understand algebra and geometry. To me, the most important part of teaching is giving our students the necessary tools to be successful in life. So often I wonder if I'm achieving this goal. However, throughout the entire STEM days, we knew our students were learning skills that they will never forget. In a post-survey that our students took after the STEM days, almost every student's interest in STEM increased. What an amazing way to get our kids excited about school! Our job market today needs people in the STEM fields. We're preparing our students for future jobs that don't even exist. These jobs almost always need the thinking skills that projects like the STEM days promote.

Along with the post-survey, students were required to keep a daily reflection in an interactive journal after each activity. Since this project was so valuable to the students, I thought I would share what some of them wrote about their experience.

"I loved all the activities we got to do this week and this program is very fun for me because I love to problem solve, build, and be an engineer. I can't wait until the next week to do even more!"

"The crane was a little challenging for me because stringing the lifting hook and putting pulleys on the assembly took a lot of planning, teamwork, and effort. I can't wait for our Math Edge!"

"Today we worked on building bridges. We built a beam-bridge. We built bridges that are strong. One bridge didn't break. We learned about trusses and how trying triangulation on the frame makes the bridge much stronger. Today was fun."

"Coding is so, so educational for me to become an engineer. Learning this is a HUGE step in our life. I felt like this whole STEM program was a fun learning experience."

"I think using LEGOs® is a good way to learn how to program stuff. I built a Ferris wheel and made it taller and taller. Then I took off a side and made it a wind turbine that moved by itself. I thought it was fun."

"So far, this (the LEGO® car), was my favorite project we've done. My favorite part was testing out the car on the ramp and figuring out how to get less friction. I'm glad I got to fix my mistakes and think of new solutions."

"This project was really fun. It was hard when we couldn't figure out how to get the car to go faster. My favorite part was when we redesigned the car and broke the record. You had to cooperate with your partner. We should do more of STEM and STEAM."

For more information on Picturing Writing, go to:
www.storyjumper.com/book/index/23756798/Simple-Middle-School-Artwork#page/1



STEAM Based Learning Opportunities for ALL Kids

"Everybody is a genius. But if you judge a fish by its ability to climb a tree, it will live its whole life believing that it is stupid."

- Albert Einstein

Students in North Dakota come from many different backgrounds. With these backgrounds comes a whole varying array of different skill sets and different learning abilities. Schools have recognized for a long time now that students learn in many different ways. What's an ideal learning situation for some kids is not a way to success with others. The recent movement in STEAM based education looks to provide hands-on learning opportunities for all kids regardless of their ability level or unique learning style. The emphasis has become a shift to the inclusion of technology rich curriculum in a student's educational experience. But does it also go deeper? Educators have now begun to realize that what's at the core of a major shift in educational pedagogy is the realization that we are now in the information age. Students are learning in different ways than they have in the past. Project based learning applications in more student centered classrooms are now beginning to move to the forefront of mainstream classrooms in both STEAM and core area courses.

Recognizing this shift in instruction, the North Dakota Center for Distance Education (NDCDE) has partnered with Creative Learning Systems to provide an opportunity to all schools regardless of size or location to help them provide opportunities for students that are project based and allow the student to take more control of their educational experience. The project that NDCDE is undertaking is to provide what are called North Dakota SmartLabs at an affordable price to all schools regardless of size or budget. These SmartLabs are a mostly turnkey technology based learning lab for grades 3-12 that comes with curriculum, hardware, software, training, and support. SmartLabs create an educational environment in a building that is exclusively supported by project based learning that is facilitated by a teacher, not led by a teacher. Each curricular engagement in a SmartLab is linked to North Dakota State Standards in all core areas along with the National Technology Literacy Standards. Categories of curriculum offered are alternative and renewable energy, computer graphics, scientific data and analysis, robotics and control technology, circuitry, digital communications, software engineering, and mechanics and structures. Through a partnership with the North Dakota Career and Technical Education (CTE), schools are also able to offer their students CTE credits in the lab along with other credit opportunities that are available for schools.



For more information about this program, please contact Matthew Lonn, North Dakota Center for Distance Education, at (701) 298-4838 or matthew.lonn@k12.nd.us.

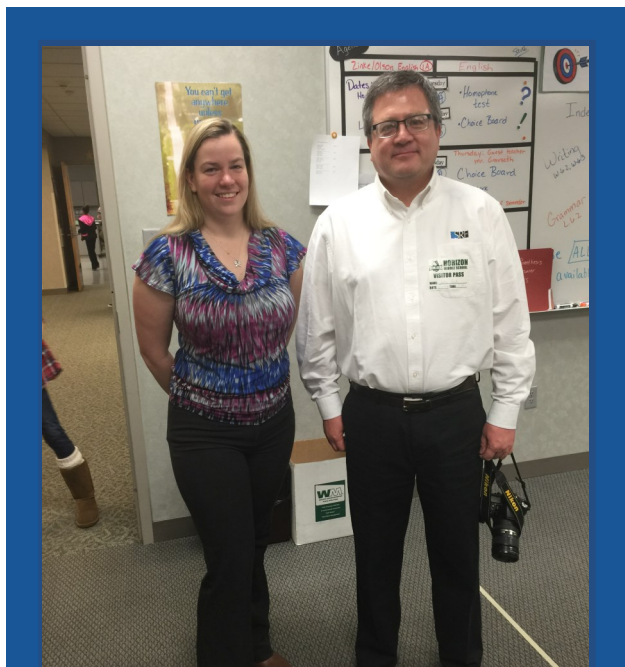


Girls in STEM: A Week-Long Engineering Immersion

By Justine Fedde, Engineer, SRF Consulting Group Inc.

When I was in college, I was told that about 17% of engineering students were female. My civil engineering class was an exception; we had 7 girls out of 22 total in our graduating class. Unfortunately, the other disciplines did not have numbers that high. The mechanical engineers had 4 girls out of 32 students, while the electrical engineers had 2 girls among their class of 25. I have continued to observe low percentages of women in the engineering field through my career. In my current office, the Bismarck branch of SRF Consulting Group, I am one of four engineers, but the only female. In the structures group of SRF as a whole, we have approximately 20 engineers and technicians; only 4 are women.

Why are there so few females in engineering? I believe that it begins early. When we are little, the “engineering” toys, like LEGOs® and toy dump trucks are marketed exclusively to little boys. Little girls are given dolls and expected to play house. As we got older, there never seemed to be a lot of encouragement to take math and science classes. I knew that I liked them, and that I was good at them. Starting as early as sixth grade when we were split up into accelerated math and normal math, there were always more boys in my math classes. I don’t know if my female classmates were not encouraged to try the accelerated math, if they didn’t think they were smart enough, if they felt like they needed to dumb themselves down to impress the boys, or maybe it was something completely unrelated.



Pictured are John Saiki, and Justine Fedde,
Engineer, SRF Consulting Group, Inc.

As we continued to age, there were fewer girls in my advanced and AP math and science classes. By the time we hit high school it was getting late for girls to get involved in the upper level STEM type classes, and by the time we started college, it was all but impossible for them to catch up and graduate at a reasonable rate.

I don’t think every student needs to be in advanced classes, nor does every student excel in them, but I think that given the numbers, we need to do a better job of encouraging girls to try. This was my goal when I reached out to Melissa Hendrickson, the STEM teacher at Horizon Middle School in Bismarck.

I have to say that I am impressed with Bismarck Public Schools for offering a STEM class at the middle school level, or actually for having STEM programs at all. We didn’t have them where I grew up in Michigan.

As Melissa and I first met to discuss a STEM immersion week for the girls, we didn’t know what it would look like. Over the next couple of months, we came up with a plan. The important thing to me was that we work with younger girls. I originally thought that fifth or sixth grade would be best. We decided to work with the 6th grade girls since they were at Horizon with

Melissa. We were strategic on the timing of our activities. We planned them right before the girls registered for classes. I would have hated it to have had the girls enjoy this week with STEM and not be able to sign up for it until the next year at which point they may have picked a different elective.

Girls in STEM: A Week-Long Engineering Immersion—continued

Ultimately, we decided to do three activities over the course of a week. First the girls were asked to create a car out of lifesavers, construction paper, straws, and tape that could be powered only by blowing on them. Some teams created sails to blow on, other teams tried to make their cars light-weight to travel more easily without a sail. The teams then raced the cars, and whichever car traveled two meters fastest won the race. Points were awarded for their place in three races. This activity involved the most creativity, and the designs turned out very unique. Some of the groups made cars with big sails and mobile wheels. Some groups found that they weren't quite as successful when they taped their lifesaver "wheels" to the straw "axles". One group got very creative and made a very lightweight "car" out of only the wrappers from the lifesavers and some tape.

The second task the girls were asked to perform was to create a tower out of four notecards and eight paper clips which could support the weight of their school books. As with the cars, some designs were more successful than others. The more successful groups rolled their notecards into cylinders and held them together with paperclips. Not only did the groups have to design the height their towers, they also had to decide the location of the cylinders relative to the corners of the books. Do all four notecard cylinders go together in the middle? Or are they better off when spread to the corners? One group designed their tower so well that they held 15 literature books.

The final task the girls completed was to create a rocket and a launcher out of construction paper, a straw, a Popsicle stick, rubber-band tape and a couple paper clips. They taped paper to the straw to create fins, then used the Popsicle stick and rubber-band to make the launcher. After completing the rocket, they would test launch them and see whose designs went the furthest. There were many different designs of rockets, some of which were more successful than others.

It was great working with only girls. They solve problems differently in "girl only" groups than they do in mixed gender groups and all the girls contributed something to their groups. This is something that doesn't always happen when you have to impress the cute boy across the table from you. I surveyed them after the week of engineering related activities, and the number of girls interested in taking STEM as an elective for the next year almost tripled from 9% before the STEM week to 23% after.

This was never about excluding the boys, but as current enrollment numbers indicate, boys don't have the same aversion to STEM related classes as girls. It is at this early age that it is so vital to get kids, girls and boys alike, interested in the STEM fields so they take the necessary classes in middle school and high school to be prepared when they get to college. As the number of girls and boys in STEM classes equalize, we will see new, innovative solutions to every task that is tackled.



Educator Reflection

By: Tara Olsen, Horizon 6th Grade Teacher

Girls Engineering Week was a unique way to introduce and encourage girls to participate in STEM classes. At the start of the week, girls were given a brief introduction as to what STEM was and the different avenues a person could follow with an engineering degree. Students were asked who currently was participating in STEM classes. The response was roughly ten girls (of 140). For three days, girls were given new challenges including building and racing a car, building a structure that could support weight, and finally building a rocket out of straws and tape. Winners of each challenge were given points that were tallied to create the top three teams.

As a teacher, the experience of this week was very eye-opening. During the course of the week, I watched young ladies emerge from their shells and ask deep questions and take risks they would never have dreamed of days before. I watched a girl who literally slept through class the previous week actively engage in the activities. She registered for the class next semester. I heard discussions that went beyond the 30-minute home-base period and into their day as they shared what they had learned. I listened to them make connections between other classes and real experiences in their lives as they problem solved to meet the challenge before them. Melissa, Justine, and their colleagues did an excellent job of organizing and encouraging students along the way.

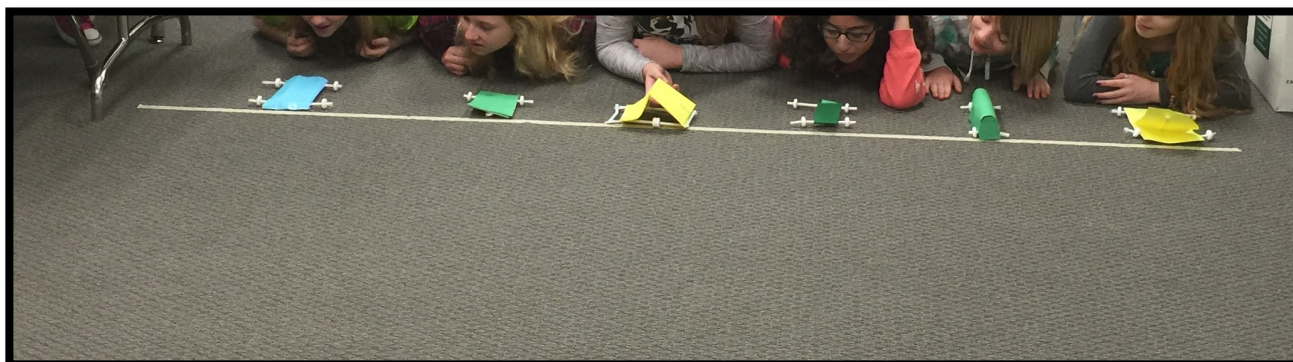
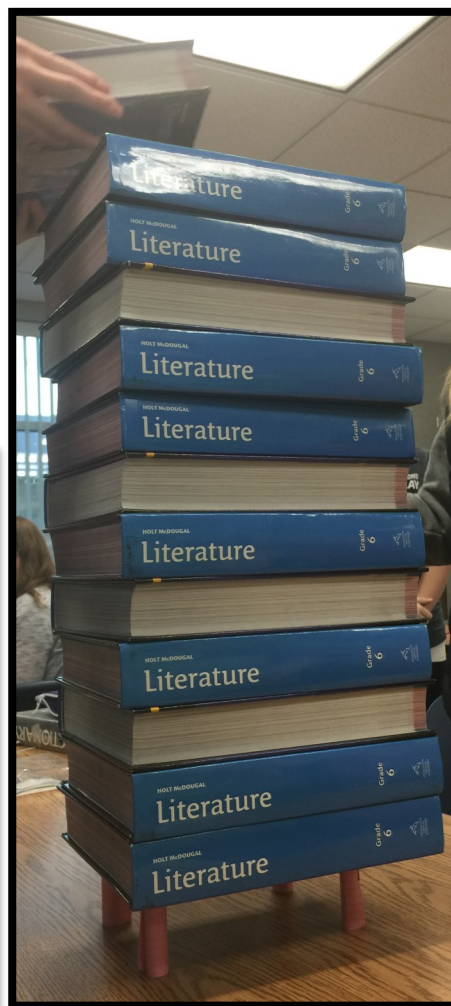
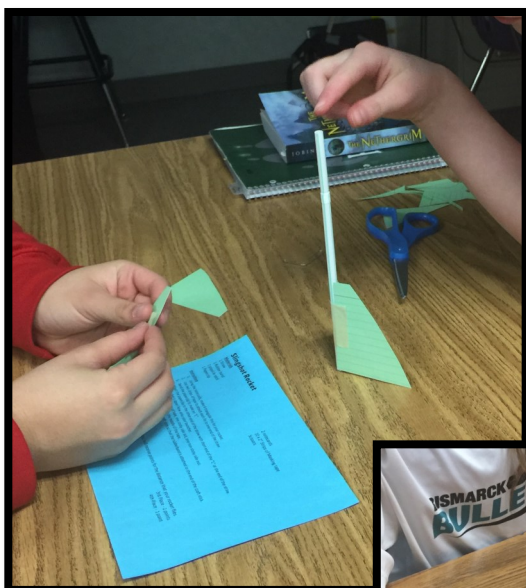
On the final day, prior to the awards, the question was asked, "How many girls want to participate in STEM or technology classes next year?" Over half of the hands in the room were raised. More importantly, 100% of the hands hit the air to the questions, "Did you learn something new?" and "Would you like to do this again?" Not all of the participants will take STEM classes, but the door has been opened for them to see the opportunities.



Student Reflection:

By: Schila, 6th Grade Student

These three things that we are doing are very exciting. They are like the most exciting things since the first day of school. I never had something like this at any other school. I used to be lazy, but now I am hyper in a good way. It made school time fun. Now I want to go to school every day. We should do this more often. The things that we did were make a car out of paper, life savers, and bendy straws. Then we made a tower out of big books, and there was paper at the bottom to hold it up. Then we had to make rockets. We lost.



Upcoming 2016 State and National Conferences

Register Now

July 12-15, 2016



NATIONAL
MATH + SCIENCE
INITIATIVE

LAYING THE FOUNDATION

Magic City Campus High School
Minot, ND



NORTH DAKOTA DEPARTMENT OF
PUBLIC INSTRUCTION

Sponsored by the
Division of Student Support & Innovation

Two credits offered

<http://training.nms.org/Portal/Registration/RegistrationMap.aspx>

Keynote



Aaron
Hansen



Author of
*How to
Develop PLCs
for Singletons
and Small
Schools*



Receive a copy
of the book!

SAVE THE DATE!!

PLC SUMMIT



Professional
Learning
Community

APRIL 26-27, 2016
8:00-4:00 PM CT
BAYMONT INN AND SUITES
MANDAN

DAY 1: Aaron Hansen will highlight how to create PLCs for small schools and large school singletons.
DAY 2: Will feature examples of North Dakota programs and experts with North Dakota resources.

REGISTRATION: \$225 per person
Bring a team! There will be team time to start planning for next year!



NORTH DAKOTA DEPARTMENT OF
PUBLIC INSTRUCTION

**March
2016**

[MSP Meeting](#)

March 1-2, 2016—Renaissance Baltimore Harborplace Hotel in Baltimore, Maryland

**April
2016**

[3rd Annual STEM Conference: Best STEM Practices for the Next Generation](#)

April 8, 2016—Cleveland, Ohio

[2016 NDCTM & NDSTA STEAM Conference](#)

April 21-23, 2016—Grand Forks, North Dakota

If you are interested in presenting please [register](#).

**June
2016**

[Math Summer Institute](#)

June 13-14, 2016—Mandan, North Dakota

[Picturing Writing: Fostering Literacy through Art](#)

June 13-17, 2016—ND Heritage Center, Bismarck, North Dakota

**July
2016**

[NSMI Laying the Foundation](#)

July 12-15, 2016—Minot, North Dakota

[NTSA National Science Teachers Association 5th Annual STEM Forum & Expo](#)

July 27-29, 2016—Denver, Colorado

The North Dakota Council of Teachers of Mathematics,
The North Dakota Science Teachers Association,
The North Dakota STEM Network, and the UND STEM Initiative
present the
2016 Spring ND Collaborative STEM Conference
Twitter hashtag: #NDSTEM2016

Thursday, April 21, 2016: Pre-Conference at University of North Dakota

(Free parking will be provided at Gorecki Alumni Center. Free buses will shuttle to chosen destinations.)

1:00 - 4:00pm	Preconference STEM Networking Sessions (Start @ Gorecki)	Various Campus Locations
4:15 - 5:45pm	<u>Most Likely to Succeed</u> Documentary Film (1 hr. 26 min.)	Union Lecture Bowl
5:00 - 9:30pm	Registration & Reception (hors d'oeuvres & cash bar)	Gorecki Alumni Center
6:00 - 6:15pm	Welcome from UND Administration	Gorecki Alumni Center

Conference attendees will also want to take advantage of these [Time-Out](#) events on campus:

8:00am-9:00pm	Native American Higher Ed Leaders Gallery/ <i>Sing Our Rivers Red</i>	Union Badlands Room
8:00am-6:30pm	Native American Student McNair/Poster Presentations	Union Badlands Room
7:00 - 8:00pm	Time-Out Week Keynote <i>Miss Navajo Nation</i> , Alison Jeri Shirley	Union Ballroom

Friday, April 22, 2016: Main Conference Day 1, Red River High School

8:00 AM – 9:30 AM	Greeting from Grand Forks and ND Public Officials Opening Plenary – Don Wettrick, author of “Pure Genius”
9:30 AM – 12:00	Morning Breakout Presentations and Conversation Sessions
12:00 – 1:00PM	Lunch - Keynote Speakers Amelia Terrapin, “The Solar System in Motion: Learning Science through Movement” Brenda Wojnowski, “Models and Approaches to STEM Professional Development” Ketal Patel, “School Design and Strategy: Hybrid Teaching and Learning” Jerry Valadez, “What Everyone Should Know About the Successful K-12 STEM Education Report”
1:00 PM – 5:00 PM	Afternoon Breakout Presentations and Conversation Sessions
6:00 PM – 9:00 PM	NDCTM/NDSTA Banquet

Saturday, April 23, 2016: Main Conference Day 2, Red River High School

8:00 AM – 9:30 AM	Saturday Plenary Science Keynote: Roger Bybee, “Translating the NGSS for Classroom Instruction”
8:00 AM – Noon	Morning Breakout Presentations and Conversation Sessions
Noon – 1:00 PM	Lunch - Keynote Speakers (repeat of Friday’s Patel, Valadez & Wojnowski)
1:00 PM – 3:00	Afternoon Breakout Presentation and Conversation Sessions

To register go to: <http://www.ndctm.k12.nd.us/2016-spring-steam-conference/>

Resources

Storyjumper - www.storyjumper.com/book/index/23756798/Simle-Middle-School-Artwork#

STEAMed Quarterly Digital Magazine - Excited about STEAM and want to learn more about this innovative approach to education? Welcome to the STEAMed magazine! This quarterly publication is absolutely FREE to you, thanks to the generous partners in each edition.

North Dakota STEM

Scratch

NDDPI Now on Twitter!

@NDDPI: North Dakota Department of Public Instruction

@NDDSSI: Division of Student Support & Innovation

STEM Twitter Sites

@NSTA: National Science Teachers Association.

@TeachingSTEM: A networking and information service for science, technology, engineering and mathematics teachers and educators in schools and colleges.

@CADREK12: CADRE supports STEM education researchers and developers funded by the National Science Foundation.

@SciAfterSchool: Dedicated to improving afterschool STEM learning for all youth.



Grant Opportunities

Toshiba - Grades 6-12. Next grant cycle: October 1, 2016

Honda - Grant cycle deadlines: February 1, May 1, August 1, and November 1

VOYA Unsung Heroes - Grant deadline April 30, 2016

Unsung Heroes Scholarship America

Laura Bush 21st Century Librarian Program - Grant period for this year is closed; keep on file.

The Captain Planet Foundation - Grant deadlines—September 30 and January 31.

Sol Hirsch Education Fund Grants - Application for the 2016-2017 school year opens February 2016.

The Verizon Foundation - This grant is by invitation only. Contact your Verizon Relations Manager in your area to learn more about this opportunity. (Site has a search engine to find your local Verizon Relations Manager).

Digital Wish Grants - Login to Digital Wish and submit a technology-based lesson plan for a chance to win over 50 different technology grants. Grants will be awarded on the 15th of every calendar month.

Call for Educators and Students: We Want to Hear from You!

Educators

We want to hear from educators in the field. If you are doing something innovative and exciting in the area of STEM/STEAM, please contact us. While North Dakota is a state in which there is usually one degree of separation, I know for a fact that there are innovative, exciting things happening in classrooms, libraries, and before and after school in the areas of STEM/STEAM that other educators are unaware of. This newsletter is a forum for educators to share what they are doing. Please consider contacting us about what you are doing. We would love to share it in our newsletter. The next STEAM Newsletter will be going out in March 2016.

Students

Do you have a student who has excelled in the areas of STEAM? If so, please consider sharing this student and their accomplishments. The STEAM Newsletter will be featuring *Student Reflections* as a regular feature.

Please contact:

[Beth Larson-Steckler](#)

Office: (701) 328-3544

Fax: (701) 328-0203



MSP Reminders

- **Quarterly Report**

The lead agency is responsible for preparing and submitting the quarterly report. To access the template, click [quarterly report template](#). The quarterly report is due to the NDDPI on the following dates:

- ⇒ March 28, 2016
- ⇒ June 27, 2016
- ⇒ September 26, 2016
- ⇒ December 2016

- **Annual Progress Reports**

The lead agency is responsible for completing and submitting the annual progress report each year. To access the template, click [annual progress report template](#). The annual progress report is due to the NDDPI by October 30, 2016.

Contact Information

Laurie Matzke Assistant Superintendent Student Support & Innovation (701) 328-2284	Beth Larson-Steckler Program Administrator Title II, Part B (701) 328-3544	Patty Carmichael Fiscal Officer Title II, Part B (701) 328-3264
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